

WHAT IS CLAIMED IS:

- 1 1. A method for producing a CsX:Eu stimuable phosphor, wherein X represents a halide  
2 selected from the group consisting of Br, Cl and combinations thereof, comprising the  
3 steps of :  
4 - mixing CsX with an Europium compound selected from the group consisting of  
5 EuX'<sub>2</sub> EuX'<sub>3</sub> and EuOX', X' being selected from the group consisting of F, Cl, Br, I and  
6 combinations thereof,  
7 - heating said mixture at a temperature above 450 °C  
8 - cooling said mixture, and  
9 - optionally recovering the CsX:Eu phosphor..  
1 2. A method according to claim 1, wherein between 10<sup>-3</sup> and 5 mol % of said Europium  
2 compound is mixed with said CsX.  
1 3. A method according to claim 1, wherein between 10<sup>-1</sup> and 3 mol % of said Europium  
2 compound is mixed with said CsX.  
1 4. A method according to claim 1, wherein X' is a member selected from the group  
2 consisting of Cl and Br.  
1 5. A method according to claim 2, wherein X' is a member selected from the group  
2 consisting of Cl and Br.  
1 6. A method according to claim 3, wherein X' is a member selected from the group  
2 consisting of Cl and Br.  
1 7. A binderless phosphor screen containing a CsX:Eu phosphor prepared according to claim  
2 1.  
1 8. A binderless phosphor screen containing a CsX:Eu phosphor prepared according to claim  
2 2.  
1 9. A binderless phosphor screen containing a CsX:Eu phosphor prepared according to claim  
2 3.

- 1 10. A binderless phosphor screen containing a CsX:Eu phosphor prepared according to claim  
2 4.
- 1 11. A binderless phosphor screen containing a CsX:Eu phosphor prepared according to claim  
2 5.
- 1 12. A binderless phosphor screen containing a CsX:Eu phosphor prepared according to claim  
2 6.
- 1 13. A method for producing a binderless phosphor screen comprising the steps of  
2 - producing a CsX:Eu phosphor with the method of claim 1 and  
3 - depositing said phosphor on a substrate by a method selected from the group  
4 consisting of physical vapor deposition, chemical vapor deposition or an atomization  
5 technique.
- 1 14. A method for manufacturing a binderless phosphor screen on a substrate containing a  
2 CsX:Eu stimuable phosphor, wherein X represents a halide selected from the group  
3 consisting of Br, Cl and combinations thereof comprising the steps of :  
4 - bringing heatable multiple containers of CsX and an Europium compound selected  
5 from the group consisting of  $\text{EuX}'_2$ ,  $\text{EuX}'_3$  and  $\text{EuOX}'$ , X' being selected from the group  
6 consisting of F, Cl, Br, I and combinations thereof together with the substrate in a  
7 deposition chamber that is evacuated to at least  $10^{-4}$  mbar; and  
8 - depositing, by a method selected from the group consisting of physical vapor  
9 deposition, chemical vapor deposition or atomization technique, both said CsX and said  
10 Europium compound on a substrate in such a ratio that on said substrate a CsX phosphor,  
11 doped with between  $10^{-3}$  and 5 mol % of Europium, is formed.
- 1 15. A method for manufacturing a phosphor screen containing of a CsX:Eu stimuable  
2 phosphor, wherein X represents a halide selected from the group consisting of Br and Cl  
3 comprising the steps of :  
4 - mixing CsX with between  $10^{-3}$  and 5 mol % of an Europium compound selected  
5 from the group consisting of  $\text{EuX}'_2$ ,  $\text{EuX}'_3$  and  $\text{EuOX}'$ , X' being selected from the group  
6 consisting of F, Cl, Br, I and combinations thereof,

- bringing said mixture in a container and bringing this container together with the substrate in a deposition chamber that is evacuated to at least  $10^{-4}$  mbar and  
- depositing said mixture on a substrate by a method selected from the group consisting of physical vapor deposition, chemical vapor deposition or atomization technique.

16. A method for recording and reproducing images of objects made by high energy radiation comprising:

- exposing a panel with X-ray radiation, said panel comprising a CsX:Eu stimuable phosphor, wherein X represents a halide selected from the group consisting of Br, Cl and combinations thereof, including between  $10^{-3}$  and 5 mol% of an Europium dopant, said dopant originating from an Europium compound selected from the group consisting of  $\text{EuX}'_2$ ,  $\text{EuX}'_3$  and  $\text{EuOX}'$ , X' being selected from the group consisting of F, Cl, Br, I and combinations thereof,

- stimulating said panel with radiation having a wavelength between 500 nm and 1100 nm thereby releasing stimulated radiation and

- collecting said stimulated radiation.

17. A phosphor of the formula  $\text{CsBr}_a\text{Cl}_b\text{:Eu}$  where  $a + b = 1$ , and a ranges from about 0.99 to about 0.8 and b ranges from about 0.01 to about 0.2.

18. The phosphor of claim 14, wherein a ranges from about 0.99 to about 0.95 and b ranges from about 0.01 to about 0.05.

19. The phosphor of either claim 14 or 15, wherein the phosphor is an x-ray storage phosphor.

20. A CsX:Eu compound prepared according to either of the methods of claims 1, 2, 3, 4, 5 or 6.

21. A phosphor characterised by the formula  $\text{CsX:Eu}$ , wherein X is selected from the group consisting of Br, Cl and combinations thereof and said phosphor exhibiting, when excited with radiation of 254 nm, a blue photoluminescence and a red photoluminescence wherein said blue photoluminescence has an power (Watt) at least 100 times higher than said red photoluminescence.

- 1 22. The phosphor of claim 21, wherein X is Br.
- 1 23. A binderless phosphor screen comprising a CsX:Eu stimuable phosphor according to  
2 claim 21.
- 1 24. A binderless phosphor screen comprising a CsX:Eu stimuable phosphor, according to  
2 claim 22.